Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-98 (Canceled)

99. (New) A system for controlling and modifying the vibratory motion of at least one string of a stringed musical instrument comprising:

a) transducer means associated with at least one string for providing a sensing signal representative of string vibration and for applying a force to said at least one string in accordance with an actuating signal;

b) at least one motion controller associated with said transducer means and responsive to said sensing signal to form said actuating signal for selectively damping and/or exciting the vibratory motion of the string or selected harmonics thereof; and

c) user control means to provide the musician with control over the behavior of said at least one motion controller.

100. (New)The system of claim 99 wherein said transducer means consists of at least one unitary sensing/actuating transducer arranged to produce during a first portion of a time frame a sensing signal representative of string motion and to apply during a second portion of said time frame an actuating force to said at least one string in accordance with an actuating signal; and

wherein said at least one motion controller is arranged to respond to said sensing signal during said first portion of said time frame and to provide said actuating signal during said second portion of said time frame for selectively controlling the vibratory motion of the string over a

succession of said time frames.

101. (New) The system of claim 99 wherein said transducer means is composed of at least one sensing transducer for providing a sensing signal representative of string vibration and at least one separate actuating transducer for applying a force to said at least one string in accordance with an actuating signal; and

wherein said at least one motion controller is an adaptive control system coupled to said sensing transducer and to said separate actuating transducer and arranged to respond to said sensing signal and to provide and adaptively adjust the characteristics of said actuating signal to maintain control of said vibratory motion of the string.

102. (New) The system of claim 100 wherein said at least one unitary transducer comprises first and second unitary sensing/actuating transducers arranged in an orthogonal relationship relative to the string and wherein said motion controller is switched between the first and second unitary transducer at one-half the time frame rate the first and second unitary transducers each being arranged to sense and actuate separate orthogonal components of the motion of a string vibrating in more than one plane.

103. (New) The system of claim 99 including at least one secondary sensing transducer (Fig. 2, 52a-c) for providing a secondary sensing output signal in accordance with the motion of at least one string.

104. (New) The system of claim 99 further including a mixer for combining various signals of the system into a composite audio output signal.

105. (New) The system of claim 100 wherein the said motion controller is arranged to drive the transducer using a discontinuous pulse width modulator further having a pre-distorting element to correct the non-linearity of said pulse width modulator.

106. (New) The system of claim 99 including an external input for supplying an external signal to modify the vibratory motion of a said string.

107. (New) The system of claim 99 wherein said user control means includes at least one control that is manually operable by the musician for control of system behavior.

108. (New) The system of claim 100 wherein said at least one motion controller is responsive to a reference control signal input prescriptive of string motion and wherein said user control means includes a supervisor to facilitate player control of system behavior, said supervisor being responsive to preselected player techniques involving selected characteristic features of string motion and supplying said reference control signals to said at least one motion controller.

109. (New) The system of claim 99 wherein said actuating signal is a correction signal for reducing the deviation of the string's motion from a desired motion.

110. (New) The system of claim 108 wherein a motion of the string undergoing a smooth changing of pitch is one of the preselected player techniques.

111. (New) The system of claim 110 wherein the supervisor/controller is arranged to provide an actuating signal that modifies the motion of the string in accordance with a measurement of vibrato.

112. (New) The system of claim 111 wherein said measurement is of the magnitude of pitch change due to vibrato and said modification to motion consists of exciting and sustaining string vibration according to said magnitude of vibrato.

113. (New) The system of claim 110 wherein the supervisor/controller is arranged to provide an actuating signal that modifies the motion of the string in accordance with a measurement of pitch change due to glissando.

114. (New) The system of claim 108 wherein the supervisor/controller is arranged to provide an actuating signal that modifies the pitch of string vibration.

115. (New) The system of claim 114 wherein said pitch modification substantially corrects the pitch to conform to a standard pitch.

116. (New) The system of claim 108 wherein the amplitude of string vibration is one of the preselected player techniques.

117. (New) The system of claim 116 wherein a string undergoing motion having amplitude above a threshold causes the supervisor/controller to provide an actuating signal to modify the string's vibratory motion and a string undergoing motion having amplitude below a threshold causes the supervisor/controller to provide an actuating signal to damp the string's vibratory motion.

118. (New) The system of claim 117 wherein said threshold is derived from an averaging of one or more string vibratory amplitudes.

119. (New) The system of claim 108 wherein a motion of the string creating a new note is one of the preselected player techniques.

120. (New) The system of claim 119 wherein the supervisor/controller is configured to modify the vibration of the most recent note played and to damp other string vibrations.

121. (New) The system of claim 108 wherein the motion of the string creating a new note having a given spectrum is one of the preselected player techniques.

122. (New) The system of claim 108 wherein the motion of the string creating one or a series of new notes of specified pitch is one of the preselected player techniques.

123. (New) The system of 122 having a user selectable mode wherein the occurrence of a preselected one or a series of new notes causes the supervisor to activate a corresponding instrument definition obtained from several stored alternative instrument definitions each instrument definition prescribing a separate behavior of the instrument.

124. (New) The system of claim 108 having a mode wherein sympathetic vibrations occurring on unplayed strings are damped.

125. (New) The system of claim 108 wherein the motion of the string being muted is one of the preselected player techniques.

126. (New) The system of claim 108 wherein the supervisor is further arranged to record, store, access, route and process data relating to the system.

127. (New) The system of claim 108 wherein the supervisor is provided with one or more external data connections whereby programs in the supervisor can be changed or replaced and/or for general data communications and/or for an auxiliary user-interface.

128. (New) The system of claim 108 wherein a portion of the system is realized using analog electrical circuitry.

129. (New) The system of claim 101 wherein said at least one motion controller is responsive to a reference control signal input prescriptive of string motion and wherein said user control means includes a supervisor to facilitate player control of system behavior, said supervisor being responsive to preselected player techniques involving selected characteristic features of string motion and supplying said reference control signals to said at least one motion controller.

130. (New) The system of claim 129 wherein a motion of the string undergoing a smooth variation of pitch due to vibrato is one of the preselected player techniques;

the supervisor/controller is arranged to provide an actuating signal that modifies the motion of the string in accordance with a measurement of vibrato; and

wherein said measurement is of the magnitude of pitch change due to vibrato and said modification to motion consists of exciting and sustaining string vibration according to said magnitude of vibrato.

131. (New) The system of claim 129 wherein the supervisor/controller is arranged to provide an actuating signal that modifies the pitch of string vibration.

132. (New) The system of claim 129 wherein the amplitude of string vibration is one of the preselected player techniques; and

wherein a string undergoing motion having amplitude above a threshold causes the supervisor/controller to provide an actuating signal to modify the string's vibratory motion and a string undergoing motion having amplitude below a threshold causes the supervisor/controller to provide an actuating signal to damp the string's vibratory motion.

133. (New) The system of claim 132 wherein said threshold is derived from an averaging of one or more string vibratory amplitudes.

134. (New) The system of claim 129 having a mode wherein sympathetic vibrations occurring on unplayed strings are damped.

135. (New) The system of claim 129 wherein the supervisor is provided with one or more external data connections whereby programs in the supervisor can be changed or replaced and/or for general data communications and/or for an auxiliary user-interface.

136. (New) The system of claim 129 wherein the supervisor is further arranged to record, store, access, route and process data relating to the system.

137. (New) The system of claim 129 wherein a portion of the system is realized using analog electrical circuitry.

138. (New) A method of recognizing preselected player techniques in playing a stringed musical instrument and utilizing such recognized techniques as player commands to govern the operation of at least one motion control system coupled to at least one string of said instrument comprising:

providing a transducer means arranged to produce a sensing signal representative of the vibration of said at least one string and to apply a force to said string in accordance with an actuating signal;

providing a motion controller coupled to the transducer means;

recognizing one or more preselected player techniques; and

controlling the motion controller in accordance with the recognized player techniques to apply an actuating signal to the transducer means to modify the vibratory motion of said at least one string by selectively damping and/or exciting the harmonic components of said vibratory motion according to the intentions of the player.

139. (New) The method of claim 138 wherein the step of recognizing preselected player techniques includes:

extracting feature signals from the transducer output signals associated with each string; and

routing the extracted feature signals according to their correspondence to one or more preselected player techniques; and

applying, as pre-specified functions of the types and measurements of the routed extracted feature signals, actuating signals to at least one of said transducers to modify the vibratory motion of said at least one string.

140. (New) The method of claim 139 wherein the step of routing the extracted feature signals includes providing a set of pattern matching rules representative of features of string motion associated with the preselected player techniques, testing the extracted feature signals against said rules, and sending specific test-selected feature signals to prescribed function processors to generate control signals to govern said at least one motion control system.

141. (New) The method of claim 138 wherein the preselected player techniques include one or more techniques in the form of amplitude of string vibration, vibrato, glissando, muting, plucking a new note of a selected amplitude, the spectrum of a new note, the spectra of a note, the harmonic balance of a new note, and one or a series of note pitches.

142. (New) The method of claim 138 wherein said motion controller of said at least one motion control system includes a reference signal input whereby said motion controller receives control signals prescriptive of vibratory motion for comparison against the actual string vibratory motion as provided by said sensing signal representative of string vibration and generates actuating signals resulting from said comparison that create forces emanating from the transducer to compel and constrain said string vibratory motion towards an intended vibratory motion as prescribed by said reference signal.

143. (New) The method of claim 142 wherein said reference signal derives from an external signal input to the instrument.

144. (New) The method of claim 142 wherein said reference signal is a frequency domain representation of the prescribed vibratory motion and the step of comparison includes converting said sensing signal representative of string vibration to a frequency domain representation, comparing the magnitudes of spectral components of said sensing signal against those of said reference signal and generating an error signal therefrom that controls a feedback filter, (block 170 of figures 3, 4 and 7), that forms said actuating signals.

145. (New) The method of claim 142 including providing a storage array of reference signals and further including converting selected extracted feature signals to indices for addressing the storage array to supply reference signals to said motion controller.

146. (New) The method of claim 139 including providing a storage array of pre-specified command phrases and instrument definitions and having a player-selectable instrument redefinition mode wherein the occurrence of a said pre-specified command phrase consisting of one or a sequence of notes causes the instrument definition to be changed accordingly.

147. (New) The method of claim 138 wherein in the case of multiple unitary sensing/actuating transducers all sensing signals from the transducers occur during the same first time portion of a time frame and all actuating signals applied to the transducers occur during a same second time portion of said time frame.

148. (New) A system for modifying the vibratory motion of at least one string of a stringed instrument in response to a measurement of a smoothly varying pitch of said at least one string due to the player technique of vibrato comprising:

a) at least one transducer for providing a sensing output signal in accordance with the motion of at least one string and for effecting a change in string motion in accordance with an actuating signal;

b) a supervisor responsive to the occurrence of said smoothly varying pitch for generating a control signal from a measurement of pitch displacement about an average pitch thereof; and

c) at least one controller and drive amplifier responsive to said control signal for applying an actuating signal to said at least one transducer in proportion to said measurement to excite or sustain the vibration of said at least one string.

149. (New) A method of modifying the vibratory motion of a plurality of strings of a stringed instrument comprising:

a) measuring the amplitude of the vibratory motion of the strings;

b) producing a first effect upon a string's vibratory motion when the amplitude of the string undergoing motion exceeds a threshold value; and

c) producing a second effect upon a string's vibratory motion when the amplitude of vibratory motion is below the threshold value, wherein the threshold value is derived from an averaging of one or more string vibratory amplitudes and wherein said first and second effects are different.